Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1. (Currently Amended) A level detector comprising:

a transparent housing;

a plurality of light emitting devices in the housing arranged along a direction which is substantially upright in use of the detector; and

a plurality of light receiving devices in the housing and also arranged along said direction, each light receiving device being operable to receive light via ~~respective~~first and second light paths from ~~at least two~~ first and second adjacent light emitting devices if the light is internally reflected by the housing, which depends on the refractive index of the fluid surrounding the housing; and

a circuit coupled to the light emitting devices and the light receiving devices and arranged such that for each light receiving device, ~~it~~the circuit can ~~determine whether~~recognize and differentiate between light ~~is~~ received ~~via each of said light paths to each light receiving device~~ via the first light path only, the second light path only, and both the first and second light paths;

whereby the extent of immersion of the level detector within a liquid can be determined by said circuit.

Claim 2. (Currently Amended) A level detector comprising:

a transparent housing;

a plurality of light emitting devices in the housing arranged along a direction which is substantially upright in use of the detector; and

a plurality of light receiving devices in the housing and also arranged along said direction, each light emitting device being operable to illuminate, via ~~respective~~first and second light paths, each of ~~at least two~~ first and second adjacent light receiving devices if the light is internally reflected by the housing, which depends on the refractive index of the fluid surrounding the housing; and

a circuit coupled to the light emitting devices and the light receiving devices and arranged such that for each light emitting device, ~~it~~the circuit can ~~determine whether~~recognize and differentiate between light ~~is~~ received ~~via each of said light paths~~ from each light emitting device via the first light path only, the second light path only, and both the first and second light paths;

whereby the extent of immersion of the level detector within a liquid can be determined by said circuit.

Claim 3. (Previously Presented) A level detector as claimed in claim 2, wherein each light receiving device can receive light via respective light paths from each of two adjacent light emitting devices if the light is internally reflected by the housing, and wherein said circuit can determine whether light is received via each light path to each light receiving device.

Claim 4. (Canceled)

Claim 5. (Canceled)

Claim 6. (Canceled)

Claim 7. (Currently Amended) The level detector of claim 1, wherein said control circuit is~~A level detector comprising:~~

~~a transparent housing;~~

~~a plurality of light emitting devices in the housing arranged along a direction which is substantially upright in use of the detector;~~

~~a plurality of light receiving devices in the housing and also arranged along said direction, each light receiving device being operable to receive light from at least one light emitting device which has been internally reflected by the housing in dependence on the refractive index of the fluid surrounding the housing;~~

~~whereby the extent of immersion of the level detector within a liquid can be determined from the outputs of the light receiving devices; and~~

~~a control circuit~~ for deriving a reading from a first light receiving device, the reading being dependent upon the relationship between an ambient measurement taken when no

light emitting device ~~illuminating the light receiving device~~ is operating and an operational measurement taken when a light emitting device capable of illuminating the first light receiving device is operating.

Claim 8. (Previously Presented) A level detector as claimed in claim 7, wherein said control circuit comprises a memory storing calibration data, the calibration data comprising values associated with respective light emitting devices and/or light receiving devices and/or light paths between emitting and receiving devices, and means operable to determine whether respective parts of the level sensor are immersed in dependence upon the outputs from the emitters and associated calibration data.

Claim 9. (Original) A level detector as claimed in claim 8, wherein the calibration data comprises at least one value for each light path and associated emitting device and receiving device.

Claim 10. (Canceled)

Claim 11. (Previously Presented) A level detector as claimed in claim 8, the control circuit being operable to determine, using calibration data, an ambient reading and an operational reading, whether a respective part of a level sensor is one of at least (a) fully immersed, (b) partially immersed or (c) not immersed in the liquid.

Claim 12. (Currently Amended) A level detector ~~as claimed in claim 8,~~ comprising:

a transparent housing;

a plurality of light emitting devices in the housing arranged along a direction which is substantially upright in use of the detector;

a plurality of light receiving devices in the housing and also arranged along said direction, each light receiving device being operable to receive light from at least one light emitting device which has been internally reflected by the housing in dependence on the refractive index of the fluid surrounding the housing;

whereby the extent of immersion of the level detector within a liquid can be determined from the outputs of the light receiving devices; and

a control circuit for deriving a reading from a light receiving device, the reading being dependent upon the relationship between an ambient measurement taken when no light emitting device capable of illuminating the light receiving device is operating and an operational measurement taken when a light emitting device capable of illuminating the light receiving device is operating;

wherein said control circuit comprises a memory storing calibration data, the calibration data comprising values associated with respective light emitting devices and/or light receiving devices and/or light paths between emitting and receiving devices, and means operable to determine whether respective parts of the level sensor are immersed in dependence upon the outputs from the emitters and associated calibration data;

the control circuit being operable to determine, using calibration data, an ambient reading and an operational reading, whether a respective part of a level sensor is dirty.

Claim 13. (Currently Amended) A ~~method of operating a~~ level detector~~, said level detector comprising:~~

~~a transparent housing;~~

~~a plurality of light emitting devices in the housing arranged along a direction which is substantially upright in use of the detector;~~

~~a plurality of light receiving devices in the housing and also arranged along said direction, each light receiving device being operable to receive light from at least one light emitting device which has been internally reflected by the housing in dependence on the refractive index of the fluid surrounding the housing; and~~

~~a control circuit;~~

~~said method comprising using said control circuit~~ operable to ~~determine, from the outputs of the light receiving devices, the extent of immersion of the level detector within a liquid by performing~~ as claimed in claim 1, wherein said circuit is operable to perform a search procedure involving checking whether an intermediate level is immersed and then checking alternately higher and lower levels, locating the highest sensor whose output

indicates immersion and checking that at least one lower sensor also has an output indicating immersion.

Claim 14. (Original) A level detector as claimed in claim 1, wherein the housing has an internally-reflecting surface which is substantially continuous and straight along said direction.

Claim 15. (Previously Presented) A level detector as claimed in claim 14, wherein the outer profile of the housing, when considered transverse to said direction, is substantially uniform throughout the distance over which level sensing takes place.

Claim 16. (Canceled)

Claim 17. (Canceled)

Claim 18. (Currently Amended) A level detector ~~as claimed in claim 11,~~ comprising:

a transparent housing;

a plurality of light emitting devices in the housing arranged along a direction which is substantially upright in use of the detector;

a plurality of light receiving devices in the housing and also arranged along said direction, each light receiving device being operable to receive light from at least one light emitting device which has been internally reflected by the housing in dependence on the refractive index of the fluid surrounding the housing;

whereby the extent of immersion of the level detector within a liquid can be determined from the outputs of the light receiving devices; and

a control circuit for deriving a reading from a light receiving device, the reading being dependent upon the relationship between an ambient measurement taken when no light emitting device capable of illuminating the light receiving device is operating and an operational measurement taken when a light emitting device capable of illuminating the light receiving device is operating;

wherein said control circuit comprises a memory storing calibration data, the calibration data comprising values associated with respective light emitting devices and/or light receiving devices and/or light paths between emitting and receiving devices, and means

operable to determine whether respective parts of the level sensor are immersed in dependence upon the outputs from the emitters and associated calibration data;

the control circuit being operable to determine, using calibration data, an ambient reading and an operational reading, whether a respective part of a level sensor is one of at least (a) fully immersed, (b) partially immersed or (c) not immersed in the liquid; and

the control circuit being operable to determine, using calibration data, an ambient reading and an operational reading, whether a respective part of a level sensor is dirty.

Claim 19. (Canceled)